

ADDRESS ON STATE MEDICINE.

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THE EXTINCTION OF CONTAGIOUS DISEASES.

Mr. President, Ladies and Gentlemen:—Is the idea utopian or has the time come in the history of the world when it should be considered a rational thought, worthy of serious contemplation? When a standard so lofty as this should be raised, and around it gather physicians, sanitarians and philanthropists fully determined upon a great struggle and animated by a reasonable confidence in ultimate success?

Concerning the *great epidemic* diseases, encouragement may be found both by a reasoning from analogy, in the study of their respective histories, and in the contemplation of modern knowledge and methods.

The history of the world shows us that whole races of men and other animals have become extinct. Why should not races of microbes become extinct? And certain diseases that once ravished the earth in epidemic form have so lost their inherent strength or have been so controlled in the latter part of the nineteenth century as to warrant the belief that their histories are closed, or fast closing. The plague of Athens and the plague of the second century are un-

known at the present time; and the terrible black death of the fourteenth century it is unreasonable to suppose can ever again sweep from the face of the earth 25,000,000 of its inhabitants within a century.

The terrible bubonic plague since the introduction of quarantine, crude though the first quarantines were, has gradually receded from Europe, its last appearance on European soil being in 1878 when the Russian government by means of military cordons and destruction of infected villages by fire succeeded in stamping it out. Though it still occurs in Asia it may never again obtain a serious foothold in Europe because of more perfect quarantine and improved sanitation.

With regard to yellow fever the *great* period of *its* history was from 1732 to 1805. Formerly it was of common occurrence in Europe, the ports of Spain in particular suffering severely between 1801 and 1825, but there has been no disastrous epidemic of this disease in Europe since that of Lisbon in 1857, thirty-six years ago.

Its earlier history in this country includes invasion not only of the South, but of parts as far north as Pennsylvania, New Jersey, New York and even New Hampshire. But to-day, though constant vigilance against its introduction is necessary, it has practically vanished from the ports of the United States.

Formerly epidemics of this disease were so frequent in the city of New Orleans that the belief became quite prevalent that it was natural to the soil, but under the excellent quarantine service, and the modern quarantine appliances of the Louisiana State Board of Health, there is now a record of fourteen years' exemption from this dreaded pestilence. The last epidemic in the United States was that in Florida in 1888, when, by reason of intelligent restraints, it was prevented from spreading to other States. Since that date an efficient State Board of Health for

Florida has been established, and under its vigorous management the disease has been barred out. Even in the West Indies some ports formerly affected are now exempt and with careful sanitation and sanitary engineering all might be freed, and this dread disease become as certainly a matter of history only, as the African slave trade with which it was intimately associated. In South America, Rio Janeiro is its principal breeding place, but the disease was unknown there until 1849. Why should it not again become unknown?

Since the discovery of vaccination by Jenner in 1796 small-pox, though still a stubborn foe, no longer devastates without restraint. It is now simply a matter of choice whether one shall be made absolutely proof against this disease, and the good effects of a compulsory law regarding vaccination are seen in the statistics of Prussia, in which country for six years prior to the enforcement of vaccination the deaths from small-pox averaged 85 per 100,000 of the inhabitants, while from 1875 to 1886, after the law came into force, the yearly average was but 2 per 100,000.

Typhus fever flourishes to-day in certain parts of Mexico, and is occasionally reported from the old world. It is always a menace where large numbers of people are crowded together with unsanitary surroundings. But it has no permanent lodgment in the United States, and the energetic and successful measures instituted by the Board of Health of New York during the past winter to suppress this disease, although it appeared in a section of the city more densely populated than that of any other city in the world, is a striking example of what may be accomplished by proper law, energetic execution and scientific disinfection.

The Japanese have recently illustrated how a disease, commonly thought to be infectious, may be

eliminated by scientific investigation and the application of a proper remedy. Prior to 1884, beriberi was the scourge of the Japanese navy. During a period of six years prior to 1884 there were 9,516 cases reported, while for a second period of six years, from 1884 to 1889 inclusive, there were but 765 cases, of which 718 occurred in 1884, which was the year in which the remedy, relating to a change in the character of the food furnished, was applied. In 1887 there was not a single case reported in the entire navy of 9,000 men; and the *New York Medical Record* aptly remarks that "this is one of the great victories of science, and lends good grounds to the hope that beriberi may before long become a rare or even unknown disease in the Mikado's dominions."

With regard to cholera, which is still an ever threatening menace, the history of the past few years has demonstrated most clearly its relation to filth and to contaminated food and water, both of which conditions require only the peculiar energy and love of cleanliness characteristic of the Anglo-Saxon race. In recent years the superior sanitation of England and the more perfect quarantine surveillance of the United States have served to protect these two nations from this exotic disease.

One possible agency in the elimination of these diseases, still young as a science but not without promise, is protective inoculation. Whatever opinion may be held of Freire's inoculations for yellow fever and Kitisato's and Haffkine's inoculations for cholera, the investigations of these and other bacteriologists in this particular field warrant the hope that results will be attained equal in efficiency to vaccination for variola. But be this as it may, the nature of these diseases is now so well known that they no longer strike terror in the hearts of those whose duty it is to meet and combat them, and never before has human agency had within its grasp the weapons

known to be efficient in preventing their spread. The terra incognita no longer exists, and we have but to provide ourselves with the weapons, and manifest the energy to wield them, to combat successfully these microbic armies hostile to human life. As to the *United States* the time is at hand when we may expect that no more shall cholera, typhus, yellow fever or small-pox prevail in epidemic form. Never before have our ports been provided, as now, with protective armaments; the ordnance, so to speak, of sanitary defense. The great power of steam has been invoked, and along the coast from Portland, Maine, to Port Townsend, Washington, where ten years ago not a single port was provided with a steam disinfecting chamber, there are now twenty-three ports with steam chambers in actual operation or in course of construction. These ports are: Portland, Boston, New York, Sandy Hook, Delaware Breakwater, Reedy Island in the Delaware River, Cape Charles, Baltimore, Wilmington, N. C., Savannah, Blackbeard Island, Ga., Charleston, Dry Tortugas, Key West, Mullet Keys, Pensacola, Mobile, Chandeleur Islands, New Orleans, Galveston, San Diego, San Francisco and Port Townsend; of these ten are national quarantine stations.

In *support* of the quarantine plants are *laws* both national and State, that are sufficient; but should perchance contagion pass this line, it meets with forces ready to prevent its spread. State boards of health have increased in number and in power. There are now thirty-seven, and at their recent conference in New York City, the reports revealed not only their zeal and activity, but an increase in the legal power and pecuniary resources of many, brought about by their own efforts within the past year. In States that have no board of health, or for other reasons fail to execute such regulations as are necessary to prevent the spread of epidemic disease into

adjoining States, the government, in the interest of all, under the act of Congress of February 15, 1893, must undertake to enforce them.

QUARANTINE LAW AND REGULATION.

It will be germane to the subject and may be of particular interest at this time, to give a resume of the measures which have been taken by the national government under the act referred to. This act, approved February 15, 1893, is entitled "An Act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service." Stripped of its legal verbiage it provides, first, that no vessel shall enter a port of the United States from a foreign port without a bill of health, signed by the United States consul, or a medical officer of the United States government; and provides a penalty of \$5,000 to be imposed on any vessel coming into American waters without such bill of health. Furthermore, the vessel shall not be admitted to entry except in accordance with other provisions of the act, and with such regulations of State and municipal authorities as may be made consistently therewith; and before being permitted to enter or discharge its cargo or land its passengers a certificate must be obtained from the health officer at the quarantine station, certifying that the rules and regulations have in all respects been complied with, both on his part and on the part of said vessel and its master. This bill of health and the quarantine certificate are to be delivered to the collector of customs.

The secretary of the treasury is directed to make rules and regulations to be observed by vessels at ports of departure and on the voyage, and the president may detail a medical officer of the government to serve in the office of the consul at any foreign port for the purpose of making the necessary inspection of vessels, to see that the regulations are com-

plied with, to sign the bills of health and to furnish information.

Consular officers are required to be notified by the secretary of the treasury of the regulations made with regard to vessels, cargoes, passengers and crew at ports of departure and on the voyage; and of the regulations also to be observed in the inspection and treatment of vessels on arrival at ports of destination in the United States. The supervising surgeon general of the marine hospital service is required to examine the quarantine regulations of all State and municipal boards of health, and at ports or places which are found to have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the secretary of the treasury, necessary, and at ports or places where State or municipal regulations exist, which, in the opinion of the secretary are not efficient, the secretary is empowered to make additional rules which after being promulgated, are to be enforced by the sanitary authorities of the States and municipalities if they will undertake to execute and enforce them, but if said authorities refuse or fail, the president shall adopt such measures as are necessary to their enforcement.

The law further specifies that it shall be the duty of the supervising surgeon general of the marine hospital service, under the direction of the secretary of the treasury to perform all the duties in respect to quarantine and quarantine regulations which are provided for by this act.

It further provides that information shall be obtained of the sanitary condition of foreign ports and places through the consular officers of the United States; that weekly reports shall be obtained of the sanitary conditions of ports and places within the United States, and for the collection of such other information affecting climatic and other con-

ditions of the public health as may be pertinent. Weekly extracts of the consular and other sanitary reports are to be prepared and published, and transmitted to the collectors of customs, State and municipal health officers and other sanitarians. The law further permits the secretary of the treasury to remand an infected vessel from any port, which is not provided with proper facilities, to the nearest national or other quarantine station, and after treatment at a national quarantine station, with a certificate furnished by the United States quarantine officer, a vessel shall be admitted to entry at any port of the United States named in the certificate. But at ports where sufficient quarantine provision has been made by State or local authorities, the secretary of the treasury may direct vessels bound to said ports to undergo quarantine at said State or local station.

An important section of this act is that which gives the president the right to prohibit in whole or in part the introduction of persons and property from such countries or places as he shall designate, and for such period of time as he may deem necessary, whenever by reason of existence of cholera or other infectious or contagious disease in a foreign country there is serious danger of the introduction of the same into the United States, despite the quarantine defenses.

Provision is also made that if a State wishes to surrender the use of its quarantine buildings and disinfecting apparatus to the United States, the secretary of the treasury is authorized to receive them and pay a reasonable compensation to the State for their use.

The first step under this new law was the framing of regulations for vessels at foreign ports. To assist in this duty a board of medical officers of the marine hospital service was convened, and the regulations

framed were approved by the secretary of the treasury February 24, and duly promulgated. These regulations prescribe the form of the bill of health; the definition of an infected port; what vessels shall be inspected before the bill of health is granted; the time and method of making the inspection, with all necessary details for the enforcement of cleanliness and perfect sanitation including disinfection, and relating both to the vessel itself and the cargo, crew and the passengers, both steerage and cabin. In ports infected with cholera, passengers of the cabin class must produce evidence as to abode during the four days immediately preceding embarkation, and if necessary they and their baggage may be detained and the baggage subjected to such disinfection as is necessary. Steerage passengers in a cholera infected port, or from a cholera infected place must be detained five days under medical observation, and their personal effects and baggage must be disinfected by steam. The regulations further forbid the shipment of certain articles of bedding and clothing from an infected port, also certain articles of merchandise, such as old rags, old jute and old gunny, during the prevalence of an epidemic and for thirty days after it has been officially declared at an end. All rags at all times are to be disinfected before shipment to the United States.

Under the law these regulations are to be enforced at foreign ports, either by United States consuls, or by medical officers of the United States government, when said medical officers have been detailed by the president for that purpose.

An examination of the records shows that the chief ports of embarkation of the immigrants most liable to bring contagion are as follows:

Southampton, Liverpool, Hamburg, Bremen, Rotterdam, Amsterdam, Antwerp, Havre, Marseilles, Genoa and Naples. Accordingly a medical officer

of the marine hospital service has been detailed by the president to serve in the office of the consul at each of the ports named. These officers have all had experience with ships, and with but two exceptions have had actual quarantine experience. They have been at their respective stations now for a period of two months, and their reports show both the necessity of their presence and the good results of their activity. This is a new departure in quarantine—quarantining in foreign lands—and the ultimate result may be looked for with great interest. Whatever the result may be, certain it is that the presence of these officers in European ports has diminished in a great degree the danger of introduction of cholera and other diseases from those ports. Their relations in one or two instances with the foreign governments were in danger of being strained, but this danger has been averted both by their tact and good judgment, and because of the all powerful United States law, which practically says to foreign officials that should they object to the official acts of these officers, the alternative is the refusal of the bill of health and the cutting off of all commerce between their ports and the United States.

For securing uniformity of action among these medical officers, and that the bureau may be informed as to any special difficulties in enforcing the regulations, an inspecting medical officer is now under detail, visiting each of these ports for the purpose named.

To aid these medical officers and the consuls in the performance of their duty a letter of instruction has been issued by the State department, addressed particularly to United States consuls at interior places in Europe and Asia, directing that when merchandise or immigrants are about to leave or have left, any section within their respective consulates where cholera prevails, they shall notify by telegraph

the United States consul or medical officer at the seaport selected for embarkation that the officer may be prepared to enforce the detention and disinfection required.

On May 4 a circular was issued to consuls and medical officers, requiring all baggage of immigrants coming from any port to the United States to bear a label certifying to either inspection or disinfection. Furthermore, each immigrant is to be furnished with an inspection card giving his name, last residence, name of ship, port and date of departure and a reference number relating to the manifest which is required by the immigration regulations, and in which is contained much information regarding each immigrant. This card is to bear the stamp of the consulate. It is also to be stamped or punched at the quarantine at the port of arrival, and again at the immigration depot, and it is to be held by the immigrant until he reaches his point of destination. These inspection tickets, and the labels upon the baggage will furnish to the health officers of the interior States information which they have much desired with regard to immigrants coming within their borders. These provisions also insure care and accuracy on the part of medical officers and particularly on the part of United States consuls at ports where immigrants do not usually embark for the United States, but which may be sought by them in the hope of avoiding the enforcement of the stringent rules at ports where medical officers have been stationed.

For the vessel on the voyage certain rules have been promulgated relating to inspection and sanitation, isolation of the sick and requiring a clinical history by the ship surgeon of all cases of sickness to be delivered to the quarantine officer at the port of arrival.

Having thus detailed the precautionary measures set in operation abroad, I will now narrate briefly

those which have been taken on this side of the Atlantic.

First I may refer to the danger which, for some time, seemed to be imminent by reason of immigration through Canada. The Canadian laws do not provide for the inspection and sanitation of ships and passengers at foreign ports, and it was feared on this account, there would be a large deflection of immigration to Canada. But owing to the public spirited policy of the Canadian government, and the energy and efficiency of the chief quarantine officer, Dr. Montozambert, the danger of introduction of cholera through Canada has been reduced to the lowest possible degree short of prohibition of immigration. All immigration into Canada is now via the St. Lawrence river. Forty miles below Quebec is stationed the Grosse Isle quarantine station, with perfect apparatus for scientific disinfection and accommodations for the sick and suspects. This station is reserved for infected vessels. Further up the river at Quebec, is the Louise Embankment, where is located a complete disinfecting plant; while at Point Levis, directly opposite, is located another. All immigrants, whether from infected or non-infected countries and though coming on non-infected vessels are obliged to undergo inspection at one of these two points, and all their baggage is disinfected by steam, the containers being washed with a solution of mercury. The disinfection is not one in name; but is thorough and complete. The Canadian government has very courteously assented to allow representatives of the marine hospital service, two in number, to be stationed at Quebec for the purpose of inspecting the disinfection and labeling the baggage and giving certificates to immigrants bound for the United States.

It was feared at one time that Halifax would be a point of danger during the present season. Halifax

is the winter port of entry for Canada, and it was proposed to continue the landing of immigrants there through the summer, but the steamship agents were informed that the quarantine plant at Halifax is insufficient; and therefore immigrants arriving there and seeking entrance into the United States through Canada would be subjected at the border to every possible delay through inspection and disinfection by the United States officers, or perhaps be turned back into Canada. Assurances were thereupon given that no immigrants will be carried to Halifax.

Thus it would seem that protection against the introduction of cholera through Canada is as complete as it can be made.

With regard to the quarantine and maritime ports in the United States it will be remembered that the new law provided that an examination should be made of all State and local regulations, and if any were found insufficient, the secretary of the treasury should make additional ones. In accordance with this provision, a request was sent to all quarantine authorities to transmit their rules and regulations to the marine hospital bureau. A general response followed, and after examination it was evident that to determine upon the sufficiency of all, a minimum standard must be established embodying what should be required of every quarantine station in the United States.

A uniform quarantine code for the maritime ports of the United States has long been the desire of quarantine and sanitary officers, and heretofore all attempts have been futile.

A board of officers of the marine hospital service was summoned to prepare a code. After the rules and regulations had been prepared and before adjournment of the board, a conference was called of the quarantine officers of the Atlantic and Gulf

coasts representing the cities and ports of Portland, Boston, Providence, New Haven, New York, New Jersey, Philadelphia, Wilmington, Del., Baltimore, Norfolk, Wilmington, N. C., Charleston, Savannah, Florida, Mobile, New Orleans and Texas.

This conference was called to order the 16th of March and remained in session two days, the first day being devoted to a consideration of the rules which had been prepared, and discussion thereof, with the understanding that there would be no vote. The second day the rules were again read seriatim, discussed and voted upon. After adjournment of the conference, the board continued its labors paying special attention to the views expressed in the conference. The rules thus perfected were then promulgated by the secretary of the treasury, April 4, and a letter enclosing them was sent to each maritime quarantine officer, calling attention to the law and to the fact that these were minimum requirements and requesting an expression of willingness and ability to execute them. Satisfactory responses have been received from all ports. These regulations relate first, to inspection of vessels, stating what vessels shall be inspected, the time of inspection, and the method of making it. They define the quarantinable diseases; and declare under what circumstances vessels shall be placed in quarantine. They relate also to the treatment in quarantine, particularly of vessels infected with cholera and yellow fever, and the time of detention and care of the passengers arriving on such vessels. Special regulations exist with regard to rags; also with regard to vessels *suspected* only of being infected with yellow fever.

As a further protective measure with reference to cholera it may be stated that on the appearance of this disease in any maritime port, a system of immigrant train inspection will be at once set in opera-

tion, medical inspectors to accompany each train from that port into the interior and provision made for the removal and care of the sick en route.

FOREIGN.

But while we have thus erected our sanitary fortification upon the coasts and have provided the means for *internal* warfare against epidemic disease, our duty is not yet accomplished. The danger of the attack should be eliminated. The sense of the American people should be aroused to an indignant protest against the approach of these diseases from other lands. Not one of them is indigenous. Cholera comes from India and Arabia, yellow fever from Havana and other ports of Cuba, and from Central and South America; typhus fever comes from Russia and occasionally from Germany. It is time that a vigorous protest should be made to the governments of the countries where these diseases flourish. Every nation should be held responsible for any conditions within its border or within its dependencies which tend to propagate epidemic disease that may be carried to other nations with which it expects to **maintain a friendly commerce.**

Is it too much to expect that the *fons et origo* of cholera in India shall be eliminated? But before discussing cholera in its home, consider a moment one of the chief means by which it finds ingress therefrom. I refer to the religious pilgrimages.

In Mesopotamia are four Shiah shrines, the most sacred, Karbala, being the place of pilgrimage for large numbers of Shiahs from both India and Persia. Thousands of bodies from India and Persia and other countries where the Shiah faith exists, are brought here by the pilgrims for interment. The place is one vast burial ground and cholera raging is carried back to their respective countries by the pilgrims.

In Mesopotamia also is the holy city of Islam where the Mohammedan sect known as the Chitty send their dead for burial. In 1889 cholera was imported there from Bombay in the clothing surrounding the dead sent from Bombay for interment. Besides Karbala and Islam in Mesopotamia, Hurdwar in India, and Mecca and Medina in Arabia, are great foci for the development of epidemics which diverge therefrom in every direction.

In 1890 there arrived by the sea at Jedda and Yembo, the seaports of Mecca and Medina in the Red Sea 43,000 pilgrims, of whom 28,000 only returned; the balance representing the victims of cholera.

Why should the whole civilized world be allowed to suffer through the constant dread of invasion, or invasion itself of cholera, on account of the religious fanaticism of the Mohammedans of the East? Why should the civilized nations of the world continue to look complacently upon these pilgrimages to Mecca with their horrible accompaniments of constant disease and death? Death while en route to the shrine at Mecca is welcomed by all true followers of the prophet as a certain passport to eternal bliss! So long as this religious theory affects themselves alone, it might be viewed with complaisance, but when it involves the health and the lives of thousands of others to whom such a thought is a very absurdity, it is the right as well as the duty of those others to protest. This subject has no longer a faraway aspect. Steam has brought us into closer connection with Mohammedism. All nations are incomparably nearer to one another than twenty-five years ago, and the welfare of the most distant places on the face of the earth has now a direct bearing upon our own health and lives. The Mohammedan pilgrimages are a subject for international arbitrament.

What pressure can be brought to bear upon the Turkish or other government, to strip these pilgrim-

ages of their disease bearing features, is a subject for immediate consideration, but one that will require careful study on the part of those versed in diplomatic relations. But when it is remembered that the vessels which carry these pilgrims, and upon which this disease breaks out, are owned by other nations it would seem entirely practicable to establish restrictive measures. I know that some of England's vessels carry these pilgrims, as well as vessels of other nations. Are not these vessels, therefore, and the governments under whose flags they sail responsible in great part for the spread of this horrible plague?

Again, with regard to the harbors of the West Indies and South America, yearly menacing our coast—should not some pressure be brought on their governments to place them in sanitary condition? Ask of the men who, year by year, stand upon the quarantine piers of our southern cities and greet the vessels as they come from these infected ports, who remove to hospital the crew or passengers stricken with yellow fever, who clean and disinfect the ships, and whose minds in addition to the bodily activity required are strained from May until November lest through some chance oversight of their own, the terrible contagion of yellow fever may pass their outport and strike the coast of the United States. Despite the exemption of the last few years yellow fever is the prevailing thought throughout the south during this period. The quarantine officers, the physicians, the commercial men and the daily press are on the *qui vive*, watchful, anxious. Why? Because, forsooth, our neighbors are content to live with an indifference to sanitation, life and health unknown within our borders.

In connection with the extermination of the source of epidemic disease should be mentioned the recent brochure of Dr. J. Telyafus, of Tiflis, Russia, who has

expressed his views upon the means of strangling cholera in its Indian home and thus freeing Europe and America from the constant menace of its periodical excursions. I quote from a recent review :

“Dr. Telyafus takes this exception to the opinion that any attempt to exterminate the germs of cholera in Indian is utopian. He states that it has been stamped out in the Nile delta, and that similar, or more energetic measures, would be equally effectual on the banks of the Ganges. Formerly the fellaheen of Egypt interred their dead on the banks of the river Nile, and the bodies were then washed out into the stream during the annual overflow of the river, and were carried down to spread disease throughout the delta. Since an end has been put to this custom, the plague no longer harasses the country. While it would be difficult, if not impossible, to restrain the natives of India from casting their dead into the waters of the sacred Ganges, it might be possible to compel them to cremate their dead and throw the ashes, if they will, on the border of the river. Drainage and the planting of the eucalyptus tree, while an enormous undertaking, is one, in the opinion of Dr. Telyafus, not impossible; similar work having been already accomplished with profitable results in Algiers.”

THE EFFECT OF IMMIGRATION ON THE PUBLIC HEALTH.

A most important subject for consideration at the present time is the effect of immigration on the public health. So far as *epidemic disease* is concerned it is superfluous to call attention to the menace thereof accompanying immigration; and the measures taken to meet this danger, and the one held in reserve, prohibition, have already been described.

Concerning the other contagious diseases, not ordinarily epidemic, there is no doubt also of the in-

creased liability thereto in the United States from this same cause.

Recently a cablegram was received from the medical officer detailed at Naples that nine ships would leave within ten days, carrying 11,000 immigrants. They are arriving at New York now at the rate of 15,000 a week—each week a new city's population grafted on the nation!

This wonderful movement of the earth's inhabitants during this latter part of the nineteenth century presents many phenomena of striking interest to the sociologist, and many problems to the sanitarian.

Where do they come from, why do they come, and what is their ultimate condition? From the standpoint of the sanitary officer it is difficult at this time to see aught but danger in this movement, or to have any other wish than that it might be stopped.

But if we may rise above our present fears and consider the subject from a very broad standpoint which commands an international as well as a national or local view, we may see in this movement a blessing to humanity not only political and intellectual, but physical as well.

Pressed out from their narrow confines, these people in swift moving columns and in swift moving ships are landed on our coast; they separate, and are almost lost to view in our vast expanse of territory.

Forced out of overpopulated districts either by a Russian decree or by their own appreciation of their unfortunate surroundings, they seek the United States as a land of promise, and in their broader surroundings and breathing the political life of a government of the people by the people, a broader and more intelligent manhood *must* be theirs.

First impressions are lasting, and the opportunity therefore is great to impress upon this large and constant addition to our citizenship a profound

regard for the laws of public health in their new homes.

At the foreign port of departure the immigrant to-day receives his first sanitary impression of the new world as he presents himself for scrutiny by the medical officer of the United States government before being permitted to board his ship.

Again must he pass a quarantine officer at the port of arrival, and once more at the immigration station be closely and individually scanned or catechised by the medical inspector.

How can he fail to be impressed, to some degree at least, with the importance attached to health in the United States?

On arriving at his destination in the State chosen for his permanent home, he is the better prepared to accept such restraint or obligations of a sanitary nature as may be imposed by a local or State board of health.

There is opportunity, therefore, for each board of health to build up within the borders of the State a tolerance and respect for sanitary laws.

Nor is the effect upon the overpopulated districts in Europe to be lost sight of. Surely the relief in some communities must be obvious.

Moreover, statistics prove that thousands of immigrants revisit their homes. The sanitary teachings of the new world go with them and can not be without effect.

We can not forget, however, that while the physical condition of the immigrant is improved, and the sanitary condition of the locality he has left, the same can not be said of our own domain and people, and greater stringency both in the laws and their execution is demanded.

THE NON-EPIDEMIC CONTAGIOUS DISEASES.

Of the contagious diseases not ordinarily epidemic

in character, but which are actually the more destructive to human life (as diphtheria, scarlet fever, typhoid fever, measles and tuberculosis), it may be said that with the exception of one (tuberculosis), the means of preventing their spread is so plain that it is within the power of every community to accomplish it.

While therapeusis is an indispensable antagonist to these diseases, their subjugation will be accomplished only by a triple alliance of *law, organization and disinfection*. Gradually the laws are spreading throughout the United States and municipalities, requiring notification, placards, disinfection and construction of special hospitals. Within a year even the White House has been placarded for scarlet fever, furnishing notable illustration of cheerful compliance with the law which may well be considered by those who would oppose it.

Sanitary plumbing and architecture, purity of water supply, proper disposal of sewerage and garbage, all are prominent subjects of town and municipal concern, and any community found indifferent thereto should be held up to public condemnation.

All sanitary organizations should be modeled after our national and State governments, embracing the three heads—legislative, executive and judicial. The framing of laws requires a skill and training apart from that required for their execution, and they accomplish their object more effectively when executed by others than those who make them, and back of them a wise judiciary preserves a just balance between the individual and the public.

Valuable adjuvants from time to time in municipal sanitation are the voluntary organizations called into existence by some particular threatening danger or by official laxity.

The most recent organization of this nature, formed because of the possible advent of cholera, and one

which may be taken as an excellent model, is the Sanitary League of Washington, a full description of which will be found in the abstract of sanitary reports of this date.

DISINFECTION.

But with regard to the destruction of these domestic contagious diseases the keynote of success appears to be disinfection, and while the germicidal properties of the several disinfectants are known, still much depends upon their mechanical application—upon the mechanical devices for their distribution.

As stated by Dr. Cyen Edson, health commissioner of New York, whose experience in municipal and house sanitation is probably unsurpassed, the great difficulty in practical disinfection is in eliminating the personal equation; that is, on account of the carelessness or ignorance of individuals to whom are intrusted the actual work, their failure to comprehend its principles and to care for details, it is often inefficient.

Now this personal equation may be eliminated provided a mechanical device is found by means of which there shall be obtained a diffusion and penetration of the disinfecting gas equal to that of the germs of the disease.

Recently attention has been called to two new *forms* of disinfectants, which with especial mechanical devices promise to be among the most potent instruments in our sanitary armamentarium.

The first of these is a recent discovery produced by the action of an electric current, electrolyzing sea water.

Doubtless all the details concerning this agent will be published by its inventor in New York, but at present I can only say that the resultant solution contains germicidal and deodorizing properties of a remarkably high degree, while the cost is immeasur-

ably lower than that of any known disinfectant permitting the application.

The second disinfectant is the anhydrous liquid sulphur dioxide. True, this has been known for several years, and experiments demonstrating its utility were made in the laboratory of the marine hospital at New York five years ago. But no device for its practical use has been offered till within a month, and it is but recently that placing it in the market for sanitary purposes has been seriously considered.

This liquid dioxide, confined in copper carboys of from fifteen to 200 pounds weight, may be easily transported, and simply by liberation will throw off the sulphurous acid gas, filling either a small room or the hold of a vessel with any required per cent.

A simple apparatus for carrying the gas cylinder from place to place, which at the same time can be used for weighing the gas liberated, has been recently devised by Passed Assistant Surgeon Kinyoun, and may be seen in the marine hospital exhibit in the government building at the Columbian Exposition.

The present difficulty with regard to this disinfectant is that its manufacture is a secret process, and the first cost of a plant large enough to supply the demand would be great. But it has been suggested that the general government might appropriately meet these two difficulties, and in doing so would confer a great benefit upon the country, for it could then furnish to local health authorities any amount of the agent in question, and at a cost that would permit its free use.

The object of the present paper will have been accomplished if it but serves to awaken interest in the possibilities suggested by its title.

Says Dr. D. B. St. John Roosa in the May number of the magazine: "Many of the illnesses that are thought to be special dispensations from Providence

occur only because of the neglect of personal care.

“The time will probably come, however, when the human race will everywhere, with only exceptional instances, live out its life. It is perfectly possible to conceive of the domination of human intellect and human force being so universal as to abolish accidental deaths.”

The day of this deliverance seems yet far off. We may not even claim to see the morning's rosy hue, but surely we *may* discern its first gray dawn and rouse to effort. The struggle is worthy of man's greatest powers, and even while striving we shall add great motive power to the upward progress of man toward his final destiny—whatever that destiny may be.